UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,148	10/20/2003	David W. Baarman	18716.84221-001	3887

7590 02/23/2007

Warner Norcross & Judd LLP
900 Fifth Third Center
111 Lyon Street, N.W.
Grand Rapids, MI 49503-2487

EXAMINER	
MILORD, MARCEAU	
ART UNIT	**PAPER NUMBER**
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/689,148	BAARMAN, DAVID W.	
	Examiner	Art Unit	
	Marceau Milord	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,17-26 and 33-55* is/are rejected.

7)☒ Claim(s) *16 and 27-32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 16 is objected to because of the following informalities: in claim 16, line 2, "impedence" should be written as follows: "impedance". Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-15, 17-26, 33-38, 43-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baraban et al (US Patent No 7065658 B1) in view of Takasan et al (US Patent No 5983076).

Regarding claims 1-4, Baraban et al discloses a contactless power supply for providing power to a remote device (figs. 1-2) comprising: a resonant circuit having a variable resonant frequency and a primary winding for transferring power to a remote device (col. 2, lines 33-36;

col. 3,lines 44-59); a receiver for receiving information from the remote device (col. 4, lines 25-57).

However, Baraban et al does not specifically disclose the features of a controller for varying the variable resonant frequency in response to information received from the remote device; where the resonant circuit includes a variable impedance element having variable impedance, and the controller varies the variable resonant frequency by varying the variable impedance.

On the other hand, Takasan et al, from the same field of endeavor, discloses a communication system that includes a rail, a separable power transmission line provided along the rail, carriages running along the rail while receiving power from the power transmission line, and a fixed station for establishing communications with the carriages. Communications between the carriages and the fixed station are accomplished by transmitting a signal via the power transmission line. The antenna unit includes an antenna device serving as a communication antenna of the fixed station and a conductive line to which the antenna device is attached (col. 2, lines 21-50). Furthermore, Takasan et al shows in figure 5, a CPU that performs drive control where the modem has the same function as the modem 39 in the operation control unit. That is, the modem converts a digital signal from the CPU to an alternating current of a predetermined frequency F and supplies the alternating current to the transmission antenna coil. Further, the modem extracts a signal component of the frequency F from the alternating current, induced by the reception antenna coil, and digitizes this signal component. The controller in the operation control unit is connected via the modem to the transmission antenna coil and the reception antenna coil (col. 5, line 60- col. 6, line 38). Therefore, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to apply the technique of Takasan to the communication system of Baraban in order to provide a power supply system where each carriage acquires power from a pickup device provided in a contactless state facing the two power lines.

Regarding claims 5, 7, 12-14, Baraban et al discloses a contactless power supply for providing power to a remote device (figs. 1-2) comprising: an inverter, the inverter having a duty cycle and an operating frequency (col. 5, lines 4-20); a resonant circuit coupled to the inverter, the resonant circuit having a resonant frequency, the resonant circuit having a primary for transferring power to the remote device (col. 5, line 64- col. 6, line 23; col. 4, lines 11-43); a power source coupled to the inverter, the power source having a rail voltage (col. 5, line 64- col. 6, line 23).

However, Baraban et al does not specifically disclose the features of a power source having a rail voltage; a controller for varying the rail voltage, the resonant frequency or the duty cycle; and a receiver for receiving power information from the remote device, where the controller varies the rail voltage, the resonant frequency or the duty cycle in response to the power information; where the controller determines an optimal setting for the rail voltage, resonant frequency or the duty cycle based upon the list.

On the other hand, Takasan et al, from the same field of endeavor, discloses a communication system that includes a rail, a separable power transmission line provided along the rail, carriages running along the rail while receiving power from the power transmission line, and a fixed station for establishing communications with the carriages. Communications between the carriages and the fixed station are accomplished by transmitting a signal via the power

transmission line. The antenna unit includes an antenna device serving as a communication antenna of the fixed station and a conductive line to which the antenna device is attached (col. 2, lines 21-50). Furthermore, Takasan et al shows in figure 5, a CPU that performs drive control where the modem has the same function as the modem 39 in the operation control unit. That is, the modem converts a digital signal from the CPU to an alternating current of a predetermined frequency F and supplies the alternating current to the transmission antenna coil. Further, the modem extracts a signal component of the frequency F from the alternating current, induced by the reception antenna coil, and digitizes this signal component. The controller in the operation control unit is connected via the modem to the transmission antenna coil and the reception antenna coil (col. 5, line 60- col. 6, line 38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Takasan to the communication system of Baraban in order to provide a power supply system where each carriage acquires power from a pickup device provided in a contactless state facing the two power lines.

Regarding claim 6, Baraban et al as modified discloses a contactless power supply for providing power to a remote device (figs. 1-2) where the receiver is part of a transceiver (col. 4, lines 2-43).

Regarding claim 8, Baraban et al as modified discloses a contactless power supply for providing power to a remote device (figs. 1-2) further comprising a memory (col. 4, lines 31-46).

Regarding claim 9, Baraban et al as modified discloses a contactless power supply for providing power to a remote device (figs. 1-2) where the transceiver communicates a plurality of remote devices (col. 5, lines 4-48).

Regarding claim 10, Baraban et al as modified discloses a contactless power supply for providing power to a remote device (figs. 1-2) where the transceiver receives power information from each of the remote devices (col. 5, lines 4-48).

Regarding claim 11, Baraban et al as modified discloses a contactless power supply for providing power to a remote device (figs. 1-2) where the transceiver creates a list in the memory of the power information (col. 2, lines 31-52;col. 5, line 35-col 6, line 30).

Regarding claims 15, 17-20, Baraban et al discloses a remote device capable of receiving power from a contactless power supply (figs. 1-2) comprising: a secondary winding having a secondary winding variable impedance (col. 2, lines 33-36; col. 3,lines 44-59).

However, Baraban et al does not specifically disclose the features of a remote device controller; where the controller varies the secondary winding variable impedance based upon instructions from the contactless power supply; where the controller disables the operation of the remote device based upon instructions from the contactless power supply; where the controller enables operation of the remote device based upon instructions from the contactless power supply.

On the other hand, Takasan et al, from the same field of endeavor, discloses a communication system that includes a rail, a separable power transmission line provided along the rail, carriages running along the rail while receiving power from the power transmission line, and a fixed station for establishing communications with the carriages. Communications between the carriages and the fixed station are accomplished by transmitting a signal via the power transmission line. The antenna unit includes an antenna device serving as a communication antenna of the fixed station and a conductive line to which the antenna device is attached (col. 2,

lines 21-50). Furthermore, Takasan et al shows in figure 5, a CPU that performs drive control where the modem has the same function as the modem 39 in the operation control unit. That is, the modem converts a digital signal from the CPU to an alternating current of a predetermined frequency F and supplies the alternating current to the transmission antenna coil. Further, the modem extracts a signal component of the frequency F from the alternating current, induced by the reception antenna coil, and digitizes this signal component. The controller in the operation control unit is connected via the modem to the transmission antenna coil and the reception antenna coil (col. 5, line 60- col. 6, line 38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Takasan to the communication system of Baraban in order to provide a power supply system where each carriage acquires power from a pickup device provided in a contactless state facing the two power lines.

Regarding claim 21, Baraban et al as modified discloses a remote device capable of receiving power from a contactless power supply (figs. 1-2) where the remote device has a remote device memory, the remote device memory containing power usage information (col. 2, lines 31-52;col. 5, line 35-col 6, line 30).

Regarding claim 22, Baraban et al as modified discloses a remote device capable of receiving power from a contactless power supply (figs. 1-2) where the power usage information is communicated to the contactless power supply by way of the remote device transceiver (col. 4, lines 2-43).

Regarding claims 23-26, discloses a method of operating a contactless power supply supplying power to a plurality of remote devices, each of the remote devices having a power

usage information, comprising: receiving the power usage information for each of the remote devices.

However, Baraban et al does not specifically disclose the steps of adapting the contactless power supply in response to the power usage information; where the contactless power supply has a rail voltage.

On the other hand, Takasan et al, from the same field of endeavor, discloses a communication system that includes a rail, a separable power transmission line provided along the rail, carriages running along the rail while receiving power from the power transmission line, and a fixed station for establishing communications with the carriages. Communications between the carriages and the fixed station are accomplished by transmitting a signal via the power transmission line. The antenna unit includes an antenna device serving as a communication antenna of the fixed station and a conductive line to which the antenna device is attached (col. 2, lines 21-50). Furthermore, Takasan et al shows in figure 5, a CPU that performs drive control where the modem has the same function as the modem 39 in the operation control unit. That is, the modem converts a digital signal from the CPU to an alternating current of a predetermined frequency F and supplies the alternating current to the transmission antenna coil. Further, the modem extracts a signal component of the frequency F from the alternating current, induced by the reception antenna coil, and digitizes this signal component. The controller in the operation control unit is connected via the modem to the transmission antenna coil and the reception antenna coil (col. 5, line 60- col. 6, line 38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Takasan to the communication system of Baraban in order to provide a power supply system where each

carriage acquires power from a pickup device provided in a contactless state facing the two power lines.

Regarding claims 33-38, Baraban et al discloses a contactless power supply for providing power to a remote device (figs. 1-2) comprising: a primary winding for transferring power to a remote device (col. 2, lines 33-36; col. 3,lines 44-59); a receiver for receiving power usage information from the remote device (col. 4, lines 25-57).

However, Baraban et al does not specifically disclose the features of a controller for changing a variable characteristic of the contactless power supply in response to the power usage information; where the contactless power supply has rail voltage, and the variable characteristic includes the rail voltage.

On the other hand, Takasan et al, from the same field of endeavor, discloses a communication system that includes a rail, a separable power transmission line provided along the rail, carriages running along the rail while receiving power from the power transmission line, and a fixed station for establishing communications with the carriages. Communications between the carriages and the fixed station are accomplished by transmitting a signal via the power transmission line. The antenna unit includes an antenna device serving as a communication antenna of the fixed station and a conductive line to which the antenna device is attached (col. 2, lines 21-50). Furthermore, Takasan et al shows in figure 5, a CPU that performs drive control where the modem has the same function as the modem 39 in the operation control unit. That is, the modem converts a digital signal from the CPU to an alternating current of a predetermined frequency F and supplies the alternating current to the transmission antenna coil. Further, the modem extracts a signal component of the frequency F from the alternating current, induced by

the reception antenna coil, and digitizes this signal component. The controller in the operation control unit is connected via the modem to the transmission antenna coil and the reception antenna coil (col. 5, line 60- col. 6, line 38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Takasan to the communication system of Baraban in order to provide a power supply system where each carriage acquires power from a pickup device provided in a contactless state facing the two power lines.

Regarding claims 43-47, discloses a remote device capable of receiving power from a contactless power supply (figs. 1-2) capable of being communicatively coupled to a second device by way of the contactless power supply comprising: a transceiver for data communication with the contactless power supply (col. 4, lines 8-26;col. 5, line 64-col. 6, line 16).

However, Baraban et al does not specifically disclose the features of a variable inductor for receiving power from the contactless power supply; and a controller for adjusting the variable inductor.

On the other hand, Takasan et al, from the same field of endeavor, discloses a communication system that includes a rail, a separable power transmission line provided along the rail, carriages running along the rail while receiving power from the power transmission line, and a fixed station for establishing communications with the carriages. Communications between the carriages and the fixed station are accomplished by transmitting a signal via the power transmission line. The antenna unit includes an antenna device serving as a communication antenna of the fixed station and a conductive line to which the antenna device is attached (col. 2, lines 21-50). Furthermore, Takasan et al shows in figure 5, a CPU that performs drive control

where the modem has the same function as the modem 39 in the operation control unit. That is, the modem converts a digital signal from the CPU to an alternating current of a predetermined frequency F and supplies the alternating current to the transmission antenna coil. Further, the modem extracts a signal component of the frequency F from the alternating current, induced by the reception antenna coil, and digitizes this signal component. The controller in the operation control unit is connected via the modem to the transmission antenna coil and the reception antenna coil (col. 5, line 60- col. 6, line 38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Takasan to the communication system of Baraban in order to provide a power supply system where each carriage acquires power from a pickup device provided in a contactless state facing the two power lines.

Regarding claims 48-55, Baraban et al discloses a discloses a contactless power supply (figs. 1-2) comprising: an inductive power supply for inductively energizing a plurality of remote devices; a transceiver for data communication with the plurality of remote devices (col. 2, lines 33-36; col. 3, lines 44-59); a communication interface for coupling the contactless power supply with a second device (col. 4, lines 25-57).

However, Baraban et al does not specifically disclose the features of a communication controller for managing communication between the second device and the plurality of remote devices; a controller capable of changing the resonant frequency, the inverter frequency, the rail voltage or the inverter duty cycle, where the controller is capable of changing the resonant frequency, the inverter frequency, the rail voltage or the inverter duty cycle in response to information from the plurality of remote devices.

On the other hand, Takasan et al, from the same field of endeavor, discloses a communication system that includes a rail, a separable power transmission line provided along the rail, carriages running along the rail while receiving power from the power transmission line, and a fixed station for establishing communications with the carriages. Communications between the carriages and the fixed station are accomplished by transmitting a signal via the power transmission line. The antenna unit includes an antenna device serving as a communication antenna of the fixed station and a conductive line to which the antenna device is attached (col. 2, lines 21-50). Furthermore, Takasan et al shows in figure 5, a CPU that performs drive control where the modem has the same function as the modem 39 in the operation control unit. That is, the modem converts a digital signal from the CPU to an alternating current of a predetermined frequency F and supplies the alternating current to the transmission antenna coil. Further, the modem extracts a signal component of the frequency F from the alternating current, induced by the reception antenna coil, and digitizes this signal component. The controller in the operation control unit is connected via the modem to the transmission antenna coil and the reception antenna coil (col. 5, line 60- col. 6, line 38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Takasan to the communication system of Baraban in order to provide a power supply system where each carriage acquires power from a pickup device provided in a contactless state facing the two power lines.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 39-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Baraban et al (US Patent No 7065658 B1).

Regarding claim 39, Baraban et al discloses a remote device (figs. 1-2) for receiving power from a contactless power supply comprising a wireless transmitter for sending power consumption information to the contactless power supply (col. 2, lines 33-36; col. 3,lines 44-59).

Regarding claim 40, Baraban et al discloses a remote device (figs. 1-2) for receiving power from a contactless power supply where the wireless transmitter comprises an RFID tag (col. 5, lines 4-12;col. 2, lines 33-37; col. 3, lines 47-56).

Regarding claim 41, Baraban et al discloses a remote device (figs. 1-2) for receiving power from a contactless power supply where the remote device comprises a memory for storing power consumption information (col. 4, lines 32-46).

Regarding claim 42, Baraban et al discloses a remote device (figs. 1-2) for receiving power from a contactless power supply where the remote device comprises a controller (col. 4, lines 8-26).

Allowable Subject Matter

6. Claims 27-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Meins et al discloses a method and apparatus for supplying contactless power.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marceau Milord whose telephone number is 571-272-7853. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MARCEAU MILORD
PRIMARY EXAMINER

MARCEAU MILORD

Marceau Milord

Primary Examiner

Art Unit 2618